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THE IVES' CHROMOGRAM.

[See Illustration.]

WE present to our readers for the current month, and the practical photographers at large who may be fortunate enough to attend the St. Louis Convention, with a reproduction of an Ives' Chromogram, or tripartite position as used in connection with the photo-chromoscope for the visual reproduction of the colors of nature.

The chromogram is a positive photograph on glass, made in the usual way from a negative, taken, however, with a special camera, but otherwise like an ordinary glass positive in appearance, except that there are three images of the subject on its surface instead of one. In the production of these three images, light, acting through color screens, registers the colors of the objects by making the lights and shades of the three pictures represent the relative effect upon the three fundamental color sensations of the eye, according to the modern theory of color vision. In the photo-chromoscope each image of the chromogram is seen by means of those rays of light only which excite exclusively the particular fundamental sensation which they represent; but by a system of mirrors the three images are superposed and seen by the eye as blended into one, which has no longer any resemblance to a photograph, but has the appearance of the object itself, as if viewed through a lens.

The photo-chromoscope consists essentially of a box, open at both ends, and with three colored glasses or screens (red, green, and blue-violet), and three pairs of small mirrors, arranged within it. With such a simple device it is possible to view the monochromatic triple image of the chromogram as a single image, reproducing all the colors of the object photographed; but in order to magnify the image, to improve the illumination, and in other respects to add to the efficiency and convenience of the instrument, it is constructed upon a more elaborate plan, with condensing lenses, color screens, mirrors, objective lens, focusing eye-piece, etc. A drawer is also provided as a convenient and safe receptacle for a number of chromograms.

Besides the more obvious uses of the photo-chromoscope, it promises to serve important artistic, industrial, and educational purposes. It will enable the artist to study in his own studio the technique of the old masters whose work may be otherwise quite inaccessible to him, and to keep ever present with him, for comparison or submission to patrons, the paintings that have left his hand. It will enable the manufacturer of carpets, the dealer in rugs, the manufacturer of stained glass windows, to show and compare the coloring of the finest productions of the artist and artisan. It will enable the physician to study and record the appearance and progress of disease, and may be utilized in schools and colleges for the purpose of demonstrating the theory of color vision in a manner at once entertaining and instructive.

Although the photo-chromoscope is a recent invention, which has not yet been manufactured for sale, Mr. Ives has already been awarded medals for it by important scientific bodies in both America and Europe. The latest comes from the Vienna Photographic Society, "having the mission to reward the most valuable work brought forward in 1893."

If you do not wish for his kingdom, don't pray for it; but if you do you must do more than pray for it, you must work for it.—*John Ruskin.*

ARE OUR PORTRAIT LENSES UP TO DATE.*

AN interesting paper upon this subject lately appeared in the *Photographische Chronik*, written by E. Goerlich of Berlin. The ground taken in the thesis was that when the photographer hears and reads so much about the great strides and advancement made in optics, and finds accounts of how the new anastigmats, double anastigmats, etc., surpass all other objectives,—he will argue to himself;—provided he is of a progressive turn;—that it would be the proper scheme to try one of the new-fangled lenses.

Consequently he writes to his stock dealer, and in return receives the coveted objective series X, number Y.

Now what is the result of this venture in the majority of cases? The operator tries the lens, and finds at the very start that the image upon the ground glass is nothing to boast of. He, however, goes on and makes the exposure, with his usual portrait illumination, and after development finds that he has an unusually hard, glassy negative, lacking all the finer detail. Disgusted he forthwith packs up the new-fangled humbug;—as he calls it;—and ships it back to the dealer whence it came.

The trial is over,—the rendered verdict condemns the much-vaunted lens as valueless.

Now comes the question, Was the verdict a just one? That is a question not so easily answered. It is certain that the negative was a poor one, unusually hard, deficient in modulation, lacking all good, soft half-tones. Yet the negative had good properties, that escaped the eye of the operator because he was blinded by prejudice and the shortcoming mentioned.

The plate was cut remarkably sharp to the very edge,—foreground, feet, and all accessories were as sharp at the extreme corners as they were in the centre. Even had a larger plate been used the result would have been the same.

The merits of the new lens consisted in its great covering power; this great superiority over the older lenses was to be seen not in the middle, but on the extreme edge of the plate.

* Translated from the German by J. F. Sachse.

Now to explain the somewhat puzzling fact that the image, notwithstanding that the usual lighting and time was employed, the result should be a hard and useless negative. The cause for this trouble was not from any bad or faulty construction of the new lens, but resulted from the bad properties of the old portrait objective with which the operator was in the habit of working.

The latter consists of three distinct and separate lens combinations; the new objectives of but two. This is an important factor, as with every additional distinct lens combination, the false light or reflections admitted to the plate increase in an enormous ratio.

Taking the single (landscape) lens as a basis of *one*, a two lens system (aplanat, anastigmat, etc.) *six*, in a three lens system (portrait objective) *fifteen* a four lens system, twenty-eight, etc.

Consequently the portrait objective admits or reflects upon the plate, by reflection or mirage, two and one-half times the quantity of false or reflected light of an aplanat or anastigmat. These are facts which are bound to come out prominently in the negative.

The brilliancy of the image decreases considerably with the number of separate lenses.

So when we substitute an anastigmat for a portrait-objective, it must not be forgotten to light the subject much softer.

As a matter of fact this is really a great advantage, as there are many days during the year when we as a rule get flat negatives. No matter how close we draw the curtains and manipulate the screens we fail to obtain brilliant, well-lighted pictures, or, as the operator would say, "plucky negatives."

Then again we have dark days, when there is insufficient light, when it is requisite to draw back the curtains much more than our judgment really dictates, so as not to prolong the time of exposure unnecessarily, and yet the result is most always a flat negative. Here again the reduced illuminating power of the anastigmat proves an advantage, as the operator can use additional light without having cause to fear a flat negative.

It is by no means safe to say that it is necessary that the operator who wishes to keep abreast of the times, should discard

the good old portrait lenses, that have thus far served him so well.

On the contrary, according to the opinions of the German writer, they should remain in use, even in such establishments where the operators seek to keep up in all departments, with the rapid advances of the present age.

The advantages of the old portrait objective are in many ways indisputable. Their chief advantage consists in the extraordinary luminosity, and good definition in the focal centre. In this particular, standard portrait objectives are unequalled, and therefore are indispensable for vignettes of carte or cabinet size. Again in child subjects and cases where success depends upon the shortest possible exposure they are invaluable to the operator on account of their unequalled luminosity.

Different conditions, however, arise where negatives are to be made of full length subjects or groups, the same applies to all open air work.

Here the advantage of the anastigmat asserts itself, as on account of the universal sharpness and flatness of field large groups can be made with the full opening of the lens, and much better results obtained than can be done by the older sorts of portrait objectives. The latter even when stopped down to their fullest extent, fail to give a negative that will compare in sharpness of definition with a similar one made with an anastigmat with full opening.

In summing up his observations the writer states that the proper course for the progressive operator would be to give both lens systems a place in his studio.

The old portrait objective should by no means be regarded as the only practical studio lens system. In addition room should be made for the anastigmat or any other good combination consisting of a two separate lens systems like the antiplanat, aplanat, to divide the honors of the studio.

Exhibition pictures.—In many cases three-fourths of the credit should go to the models, and one-fourth to the photographer.

Be prompt in everything.

PHOTOGRAPHY AS AN AID IN DETECTING CRIME.

DR. PAUL JESERICH, of Berlin, has shown that photography can be used as an aid in detecting crime in various ways.

In many cases he has secured the conviction of criminals before German courts of forgery, by making enlarged photographs of signatures, erasure spots upon paper, etc., showing through the enlargements that the original signatures had been removed by chemical means and other signatures substituted.

In other cases he showed that figures upon checks had been altered, dates upon notes, etc.

In another case, a murder trial, a pocket match box played an important part in the circumstantial evidence. He enlarged and photographed the side of the match box, thereby bringing out the almost obliterated name of the owner, and by this evidence finally securing the conviction of the murderer.

David N. Carvalho, a hand-writing expert, of New York City, has recently performed some work upon similar lines that goes to prove the old saying, that truth is stranger than fiction, and that in the hands of an expert the microscope and the camera can be made to do wonders.

A package of paper money was sent by express from New York to New Orleans. Upon leaving New York the package contained $50,000, but upon being opened in New Orleans the package had been robbed of $22,500.

Detectives, after a long search, could obtain no clue to the thief, and the case was on the verge of being abandoned when Carvalho took charge of it, and, without leaving the City of New York, placed the guilt upon the proper party in New Orleans.

Three seals upon an envelope had been broken. Two had been re-sealed with a baggage check, as Carvalho proved; and the third seal had been re-sealed with thumb pressure.

Mr. Carvalho, as an expert in all matters of identification, was, of course, familiar with the work of Sir William Herschel in

India, where the impress of the thumbs and fingers of natives have been taken and registered by the Government of Bengal. The Special Sub-Registrar of Hogaly, Bagbu Ram Gati, Bannerjee, who is in charge of these finger-mark impressions, collaborated with Francis Galton, a Fellow of the Royal Society, in the production of a work on the subject, which was published by Macmillan & Co., last year, and which goes with much detail into the positive method of identification which this system furnishes. It has been shown by this work and by the long series of experiments upon which it was based that not only are no two thumb or finger impressions alike in their linear marks and capillary ridges, but that the passage of time developes no change, and that from the cradle to the grave the skin impressions of the thumb and finger remain the same with each individual. A comparison of two forefinger impressions made after a lapse of fourteen years showed thirty points of agreement, and none of disagreement.

Out of eight cases of this kind where the Bengalese had given their finger impressions to Sir William Herschel in 1878 and again in 1892, there was a total of 125 points of agreement, and not in a single point did the fingers disagree.

Mr. Carvalho decided to make this knowledge the base of his operations. He asked the officials of the American Express Company for a wax impression of the right thumb of every man through whose hand the envelope had passed. He did not ask the names, but carefully refrained from learning them. When these wax impressions were turned over to him each bore a number corresponding to the name of the express officer who gave the impression, and these names were retained by the company. Seven red-wax impressions were given into his hands. They were the thumb marks of seven men who had had possession of the envelope between New York and New Orleans.

The examination of these impressions, so as to enable a comparison to be made between them and the thumb-marks on the envelope, was a most laborious piece of work. Each had to be enlarged by photograph to a uniform size with the enlarged impression from the seal.

These enlargements were then compared. Out of the seven five were discarded, as they bore no resemblance to the enlargement of the impression upon the seal.

The sixth showed a few identical signs and lines, but the seventh tallied with such mathematical exactness, line for line, ring for ring, that the arrest of Asa G. Gurney, the chief of the Money Order Department of the express company at New Orleans, and his trial for the committal of the theft, followed.

REMBRANDT LIGHTING.

XANTHUS SMITH.

REMBRANDT and shadow, shadow and Rembrandt. Have they not almost become synonymous? Is it perhaps just that Rembrandt should have become so associated with shadow, because no other painter probably has left so many works of art in which shadow predominates to so great an extent. But strange as it may seem to those unacquainted with his work, he was withal a clear, brilliant painter, in nowise obscure or smudgy or heavy. When I say brilliant I do not mean brilliant in contrasts of color, for he dealt little or not at all in primitive colors, though at the same time a warm, clear, transparent powerful colorist; but brilliant contrasts of light and dark, for it was by the very preponderance and depth of his shadows that he secured so much brilliancy in his lights.

Rembrandt, in addition to his quality of force of effect, always told his story powerfully, because by subordinating the greater portion of his canvases to comparative obscurity he succeeded in concentrating the attention of the spectator upon the particular group forming the incident of his work. The power of drawing the attention to the chief incident of a work of art is a happy one to its possessor. As in literature, in oratory, and conversation even, the author or speaker who is rambling and discursive, who does not gather together his ideas and state emphatically the gist of his tale or argument, will never make the impression

that the more fortunate genius will who sets you at once in understanding and in sympathy with the point of his story. In art, and necessarily in photography, this quality of conveying forcibly the intention of the work, is dependent almost solely upon composition and light and shadow, and this is why it is that it is so important that the photographer should have a thorough understanding of the simpler truths at least of composition and effect. Both of which qualities Rembrandt was master of.

It matters not whether the subject attempted is of the simplest kind, a half-length portrait, or an arrangement composed of many people, the opportunity arises in either for the display of ease and grace and force, or of awkwardness and insipidity. Rembrandt, it must not be forgotten, was dependent as much upon his composition as his light and shadow for his fine effects, because any amount of contrasts of light and dark would have availed him nothing had he not so judiciously placed them in his work that he gave them an agreeable form, supported them, and contrasted them to the utmost advantage.

Rembrandt being a master in the management of light and shadow is unquestionably one of the best guides for the photographer, whose art is at present presented to us only in light and shadow, but he must be carefully and understandingly studied in the engravings and photographs of his portraits and paintings, and in his etchings. It will not do to pose a sitter against a dark background, and, throwing the face wholly in shadow, make a photograph, and feel that you have secured a fine Rembrandt effect, for the chances are a hundred to one that you will get an exceedingly poor, dark, unimpressive picture. Such posing and arrangement might be admissible if you had a certain kind of delicate subject to deal with, with refined skin,—light hair and a fine outline contour,—the hair and garments being properly and gracefully arranged and the background very dark, and a skillful timing given, so that there would be a certain degree of brilliance of all the greatly predominating shadows which rested upon the subject. With a graceful, crisp and brilliant outline, supported by luminous shadows, a very agreeable effect is attainable. But such a lighting is only a Rembrandt lighting in the

sense that the amount of high light in the picture is exceedingly small in proportion to the amount of deep shadow and half shadow, for Rembrandt in his portraits and picturesque heads almost always adopted the full, broad lighting which has always been the favorite mode of eminent painters, and when he has departed from this the effect has never been so powerful or agreeable as when the better mode was chosen.

There is nothing easier than for a photographer to experiment in these matters. His experiments are not necessarily the work of hours or days as with painters. At any time when he happens to have a little leisure he may pose some one about his place, and in a few minutes make a number of negatives of trial arrangements in various lightings. Let him pose any ordinary dark-complexioned person against a moderately dark background, throwing the face of the sitter in shadow, and, making a careful photograph of the subject, see, on careful comparison of it, with any good work by Rembrandt, whether it can fairly be called a Rembrandt effect otherwise than as a joke or mere travesty. This sort of thing has, in fact, been so much done in a serious way, and many persons are so captivated by the simple novelty of anything, apart from its intrinsic merit or value, and by big sounding names, that a sight of work has been turned out as Rembrandt portraiture that is the vilest trash, and a libel on the great man under whose name it is passed off upon the public. Rembrandt was an indefatigable worker with his brush and his etching needle. He seems to have left us nothing in the way of writing by way of extending or elucidating his ideas, but he has certainly left us an abundance of demonstration of the particular bent of his mind. He understood that light may be luminous and brilliant in two ways,—namely, by its great expanse and all-pervading influence, and, on the contrary, by its contrast with an almost overwhelming amount of shadow. He chose and adhered to the latter principle for the embodying of his ideas, and certainly with great success, for he never was in any way remarkable for either grace or beauty in his works. Indeed, there are critics who consider him without the pale of the eminent painters, because in his scripture subjects he has none of

the classical refinement of the great Roman painters, but this is uncharitable, because his work was always earnest, and there is a certain calmness and repose in it which makes it impressive. Solemnity and sadness are wrongly associated with his work. A mistaken impression prevails that he was of a sad and miserly turn, and that much of what he did impresses us as terrible and mysterious, which ideas are entirely wrong, and cannot in any way be sustained by careful observation of his works, and comparison of them with many others, as Salvator Rosa and Michaelangelo Caravaggio for instance.

Many of his pictures which are made up of more than three-fourths deep shadow and half shadow, give the most calm and agreeable impressions, representing as they do domestic interiors with a stream of sunlight coming into an apartment, upon persons quietly and comfortably reading or performing some household duty, giving the pleasurable sensations of cheerful repose and comfort. To work like Rembrandt is not to throw your whole picture into obscurity, burying the choicest features of your composition equally with the surroundings in shadow, but to bestow the most vigorous light and shadow upon your principal feature or group, and to have the light so cast or directed that it will reveal the very best modeling, and then surround it with a very large proportion of half shadow and deep shadow, thereby giving it brilliancy and consequence.

The introduction of a proper amount of half shadow is an important consideration not to be overlooked in endeavoring to attain Rembrandt's effects. High lights in admidst deep shadow must invariably produce hard, dry, spotty effects without a fair amount of half light and half shadow to soften them off, or lead them gradually into the deep shadow. Some of the artists of Rembrandt's own time, or a little later, in endeavoring to imitate his powerful impressive style, overlooked the importance of sustaining half lights and half shadows, and instead of producing his broad mellow effects got only hard, dry pictures.

One of the greatest difficulties the photographer has to contend with is to overcome harsh, ill-shapen outlines, where masses of light drapery or other light objects cut against passages of

dark. It is so easy for the painter, by a careful disposition or by the addition of a little shadow, to soften down such harsh outlines. Many a photographic composition which would otherwise make a very attractive and agreeable picture is ruined by the high lights taking the most obnoxious forms, and being highest on the very edge, where they come in contact with the dark surrounding them, instead of a little back from the edge as the artist would have it. On this account the photographer should, whenever opportunity permits, for he will not always have the necessary time to bestow upon it, be very careful about the disposition of the apparel, especially in female portraiture. If he devotes attention to the matter, and will look at much of the photographic work published, he may amuse himself by finding the numerous instances wherein ladies' dresses, chairs, and background accessories war with each other, and vie with each other in the ugliness of their shapes and the harshness of their outlines. Rembrandt lighting is here to be brought into play. The ugly forms are as far as possible to be reduced in importance or obscured by throwing them into shadow, and the most agreeable forms that we have to present are to be allowed to stand out in full brilliancy.

Let all photographers study carefully the works of Rembrandt. Let them go to the fountain head, and look at the best that they can get hold of that is published from his paintings and etchings, and especially his portraits. Do not take him at second hand, for there has been much misconception in regard to his qualities as an artist, and they will certainly be greatly benefited, for the scope of the photographer is immense in light and shadow, and Rembrandt is one of the great expounders of light and shadow in art.

In printing Carbon work it is the practice to rub all negatives over with French chalk before printing them in carbon, in case any latent or accidental damp may cause adhesion ; and in practice, the box printing frame, with an unhinged back, is the best, the actinometer giving the necessary exposure.

THE TREATMENT OF LENSES.

GASTON NIEWENGLOWSKI, in the April number of *Le Photo Journal*, publishes an interesting paper upon the care or treatment of the photographic objective. He states that too great care cannot be taken of this, the most important part of a photographer's outfit.

The writer comments upon the fact that in his travels he has frequently seen photographers handling their lenses in a very careless manner by placing them unwrapped in a bag, or thrusting them in their pockets at the risk of mechanical injury. Often he has been tempted to ask these careless photographers to exchange prints with him for the purpose of seeing what kind of work is done with such carelessly handled and abused lenses.

It is a well-known fact, according to Faraday, Bontemps, Frensel and others, that solar light acts upon all kinds of glass; and imparts a slight coloring. The peculiarity, however, is rarely noticed in optical glasses, and in case it does occur which would change the properties of the objective, this should at once be discarded.

A good lens should always be guarded against dampness, as moisture readily condenses on the glass, being attracted by the large proportion of alkalies used in the manufacture of the glass to obtain the maximum transparency. The deterioration is greater in glass that has been exposed to the light for any length of time.

This humidity if allowed to remain on the glass for some time will impart a misty appearance to it, destroying the polish, and hence the transparency. To obviate this, whenever the surfaces of the lenses become dimmed, it is well to carefully wipe them with a piece of soft chamois skin, or a piece of a kid glove. If notwithstanding all precautions the deterioration takes place, the lens must be repolished by an optician.

Upon rare occasions the glass crystallizes in some parts, a devitrification takes place, the glass becomes opaque, and in appearance becomes like porcelain.

The action of all acids upon optical glass is injurious.

Heat or cold, causing an expansion or contraction of the mounting may produce a displacement of the lenses and a slight change in the curvature. This fortunately rarely takes place.

A too great dryness is apt to cause a cracking in the resinous matter with which the glasses are held in optical contact. Accidents of this kind, however, are only apt to happen to lenses that are stored away for a considerable period.

Lenses out of use should therefore be stored in a place free from dampness and away from a dry heat.

In traveling care must be taken so as to avoid the possibility of breaking the lenses, and also to protect them from being scratched. When either of these accidents happens it shows great negligence on the part of the operator. Scratches are often caused by over zeal in rubbing the lenses to clean them. To rub glass electrifies it, giving it the property of attracting particles of dust.

Lenses should be cleaned, not abraded; to do this one must have suitable material. For this purpose there is nothing better than chamois skin. Tissue paper and even velvet should never be used, as both are liable to scratch or dim the surface.

Velvet, if new, may be used, but as it so readily catches the dust is not satisfactory. In making a bag or case to hold a lens, only some soft skin devoid of granulation should be used.

It is not sufficient to keep the exterior surfaces of the lens clean, but also the inner surfaces, in which the dust is apt to accumulate. To do this unscrew the combinations, and if the slightest resistance is encountered, do not force by using pincers, but, tying a ribbon noose around the portion to be unscrewed, pull strongly against the thread. If this is not successful, that part of the mounting may be heated by an alcohol flame, when separation will readily occur. If, after cleaning the lens, spots remain, they can be removed with a soft skin, soaked in alcohol. A little pure white vaseline on a skin may be passed over the inside parts.

"BLESSED are the sorrowful who carry a cheery face."

THE TURKEYTOWN HYPO CLUB.

J. FOCUS SNAPPSCHOTTE.

THE spring meeting of the Turkeytown Hypo Club was notable for the scientific character of the proceedings.

During the evening the question was raised as to the merits of the various brands of commercial orthochromatic plates, and how one was to tell them, without spoiling box after box full of plates. During the discussion which followed, Prof. Gobler, with his usual penchant for foreign products, contended that the eosine plate as originated by Vogel was the only one which gave true color values in connection with a proper color screen, and that during his late visit to Europe on a "personally conducted" tour he had confined himself strictly to that make of plate, and that out of two dozen 4x5 plates he had exposed he had obtained 10 good negatives.

Prof. Gobler went on to state that it was fortunate for the members that this question had been raised, as he had been informed by a drummer from a New York stock house that at least one of the American plate-makers was in the habit of adulterating the orthochromatizing eosine solution used, by the use of the juice of *Lycopersicum Esculentum rubrum.* This, however, the drummer informed him could be easily discovered by the following formula—which was capable of detecting the presence of a single drop of eosine in a hundred gallons of water.

The proceeding was very simple; all that was necessary was to moisten a dozen plates so that the emulsion could be scraped off the glass or film; this was then to be boiled in five times its bulk in water, then strain off the solid matter, and to the liquid add a few drops of pure hydrochloric acid (muriatic acid) and shake this with ether. Draw off the ether, which will contain the coloring matter, and agitate this with a dilute solution of caustic soda. The soda solution will contain the brom-eosin, and will have a reddish-yellow color with a fluorescent appearance. If the orthochromatizing solution has been adulterated with the juice of the Lycopersicum Esculentum rubrum this coloring

matter will also be extracted; and as a result the fluorescence will not be apparent, in which case it will be necessary to further remove this by acidifying the soda solution and repeating the operation by extracting with ether, and shaking with dilute caustic soda solution, when the fluorescence will appear and the adulteration will be proven.

Dr. Oxalate Strong here asked whether this analyzation would have to be done in the dark room or could be done in a white light.

Prof. Gobler in reply stated that on account of the extreme sensitiveness of both *Eosine* and *Lycopersicum* it would be absolutely necessary to proceed carefully, and it would be well to carefully screen the ruby lantern with two thicknesses of yellow fabric.

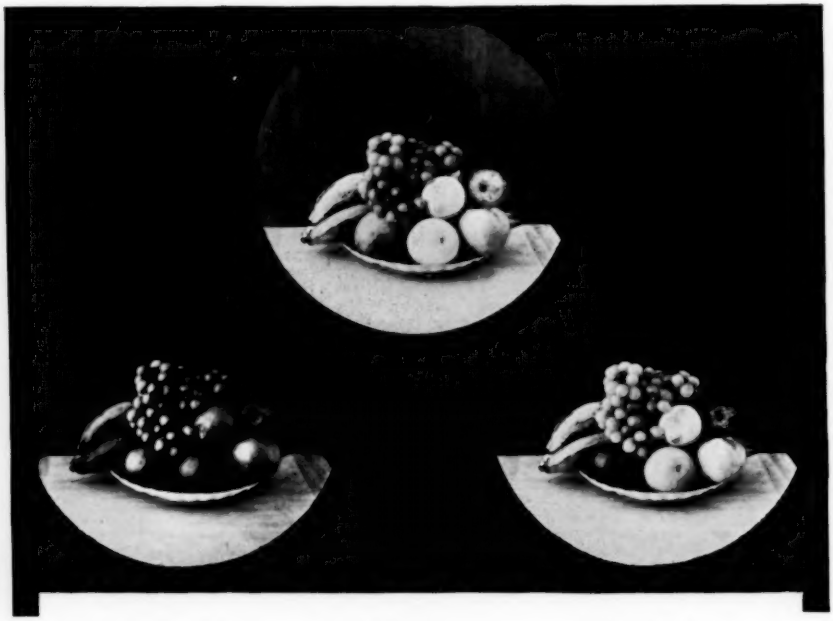
The Hon. Vice-President here moved that Prof. Gobler's remarks and formula be engrossed and hung on the walls of the society for the exclusive use of such members who were not in arrears for their dues. Carried unanimously.

Mr. Ryttenhouse Shutter, a new member, here stated that while he could understand that it must be good for trade to spoil dry plates, but this should not be from insufficient instruction when giving formulæ. For instance, he had bought a box of plates, and in the accompanying formulæ it stated

Pyro	so much
Soda	"
Water	20 ounces.

If this means twenty ounces of water besides the chemicals, then to dissolve these chemicals in a 20-ounce bottle must make the developer of wrong proportions, as there would be less than the proper quantity of aqua pura.

Then again he had read, "Never omit the alum bath," but as far as he could call to mind it is only a single manufacturer who was thoughtful enough to tell us how to make it up. Only recently he was showing to a friend, who is a professional, an over-exposed negative; he told me the only way to save a plate when over-exposed is to "sling in bromide." This seems rather wide firing, not even telling me what to sling it in with.



BLUE SENSATION. RED SENSATION. GREEN SENSATION.

AN IVES CHROMOGRAM.

(SEE PAGE 290.)

(MADE BY A SINGLE EXPOSURE ON AN ORTHOCHROMATIC PLATE.)

Mr. Shutter was advised to attend the meetings of the Turkeytown Hypo Club regularly, and not permit himself to be misled by reading any photographic magazine.

The closing feature of the evening was a demonstration by Mr. R. Silverstayne of a new photo-solar-comet flash powder. Several cabinet negatives made with the new compound were shown and commented upon, the demonstrator stating that these results were obtained by the use of but a little over half an ounce of the mixture for each exposure.

At this stage a member asked whether he was not in error as to the quantity of powder used, as it seemed to be an abnormally large amount of the explosive compound, the explosion of which might prove dangerous to the sitter.

The demonstrator stated that in Italy much larger charges were used, and that while it was true that the rapid action of the new photo-solar-comet powder was due to finely powdered dynamite, it was no more dangerous than such as are made with nytro-glycerine or giant powder.

A practical demonstration was then given, the sitter being the genial president. The resultant negative proved to be somewhat flat,—but this it was decided was not due to any fault of the new photo-solar-comet powder, but to the fact that the Hypo had been mixed without taking the temperature of the water.

On motion of the vice-president it was resolved that the aluminum medal of the Society be awarded to Prof. Gobler for his able method for detecting the presence of the *Lycopersicum Esculentum rubrum* in orthochromatic plates.

Also a similar award to Mr. R. Silverstayne for his improvement in artificial illumination in photographic exposures.

Adjourned.

The art we all learn easiest—the art of finding fault.

A debt of love is never outlawed.

Be polite to everybody.

THE PROPER DENSITY IN PORTRAIT NEGATIVES.

THE question, "What constitutes a really good printing negative?" is infinitely more difficult to answer at the present day than was the case formerly, when the printing was done almost wholly upon albumenised paper. Then one general type of negative answered all purposes, and should any accidental variation from the usual style and quality occur, it was comparatively easy to meet it by corresponding modification in the printing process. Thus, the simple expedient of printing under ground glass or tissue paper, would often meet the requirements of a negative that was only a little too thin, or in worse cases the use of a stronger sensitising bath effected the purpose. The reverse conditions seldom arose, for the tendency in those days was rather to aim at the greatest possible density obtainable in the negative, and to trust to lengthened exposure in the printing frame, for the production of detail in the light and half-tones. The shadows were, in fact, practically left to take care of themselves, and the "bronzed" appearance of an untoned albumen print of twenty or more years ago would astonish a photographer of the present day.

With the substitution of iron for pyro development the extreme density, formerly the rule, was not so easily obtained, and it began to be recognised that the thinner images were capable of giving equally good results, if not indeed better, than those formerly the case; and with the subsequent introduction of retouching and modifications in the quality of the commercial albumen papers the old type of pyro-developed negative requiring some hours' printing in sunshine entirely gave place to a more delicate style of image.

On the introduction of gelatine plates in 1878, a still thinner and more delicate class of image came into vogue, not so much because it was sought after by photographers, but rather because they were in a measure unable to help themselves; and it will be remembered that for some years the cry of "want of sparkle"

was raised against the new plates, which were for a long time believed even by some of the most experienced workers to be inferior to collodion plates in respect of density and gradation.

It is many years now since increased experience in working, coupled undoubtedly with improvements in the films themselves, relieved gelatine plates from this imputation, and it may be accepted as a fact that the average work of to-day is quite equal to that of the best days of wet collodion. Further than this, we think that much of the work is of a decidedly better quality than formerly, or that now there is a larger percentage of good work, owing to the easy adaptability of gelatine plates to the production of negatives of any desired type.

But, at the same time that gelatine plates and their manipulations have been improving, we have also had introduced numerous methods of printing that were hitherto unknown, and all of which require, for the production of the finest results, negatives of a more or less varying character as regards density and gradation. While this plethora of printing processes places fresh power in the hands of the modern photographer, it at the same time constitutes somewhat of a difficulty in the case of those who are in the habit of employing different methods of printing, as, for instance, silver and platinum or carbon. Individually, both silver and carbon are susceptible of considerable modification in use, and so, to a more limited extent, is platinum, but separately they require negatives of quite different character, so that the photographer who desires to utilize the same negatives for more than one process is placed at somewhat of a disadvantage, unless, indeed, he exercise some care in the selection of his methods.

This, of course, the professional will always do, though it is to be feared that the amateur is not always so careful. Besides which, too, the amateur, either from want of skill or more probably from negligence, seldom secures any degree of uniformity in the character of his image, but remains content with whatever sort of negative he may get, provided it possesses the qualities that go to make a "good negative."

But here the difficulty arises, What constitutes a good negative? The good negative—that is, the *best* negative—for one process of reproduction may be far removed from the first position when applied to another method of printing. For instance, the negatives that give the finest prints with albumenised paper will behave in a very inferior manner if used with one particular kind of gelatino-chloride paper; while even with different brands of the latter kind of paper the difference of behaviour may be so great as to render the same negative utterly unsuitable for one or the other. From this cause alone, no doubt, arise by far the greater number of the complaints we hear of failures with one or other of the modern printing methods, and the condemnatory remarks expressed with regard to this or that commercial product.

But while the careful man may find it easy to adapt his method of working to the requirements of any particular process—may, in fact, by aiming at a certain standard of negative, secure uniformity and quality of results—the less careful individual may find actual advantage in the multiplicity of processes; for, while his negatives may represent every variety of image, from dense to thin, from flat to vigorous, by choosing his printing process for each, all may give good results; instead of which, it is too frequently the case that the most opposite types of negative are attempted to be worked with the same kind of paper.

Of the different processes available, those that lend themselves most unduly to negatives of varying character are undoubtedly the carbon and albumenised paper processes, the latter being of the home-sensitised kind, and not prepared specially for keeping. The advantages in both these processes lie in the fact that the photographer has the power of varying the strength of his sensitising solution, to so modify the properties of the printing surface as to adapt it to images of the most widely different character. As regards the platinum, gelatino-chloride, and other processes, the products of which are commercial articles, although it is possible in the process of manufacture to vary their qualities, this power is not with the consumer, who is compelled to use what is given him. Still, even here he possesses a considerable power of judicious selection, which enables him, if he be so in-

clined, to choose his printing surface to suit the particular negative.

Thus, for the delicate negatives, replete with detail, produced by the aid of some of the newer developers, most of the commercial gelatino-chloride papers are especially suitable, although we have met with more than one sample of this kind of paper possessing quite opposite properties. For stronger and more robust negatives albumenised paper or platinotype will give better results, while from really "hard" negatives the matt and rough-surface papers give the most harmonious pictures.

The class of negative that, in a general way, lends itself best to variations in printing is that of medium strength, tending rather to softness, though with full density in the highest lights. The kind of negative referred to is one that shows neither a great amount of clear glass nor anything approaching opacity in the lights, both signs of under-exposure; and an under-exposed negative is, of all kinds, the most hopeless. The exposure must be ample without being too long, and the development carried to such a stage that even the finest details in the shadows have some printing value. It is of no use having a negative "full of detail" if the detail will not print, and the amateur beginner is too apt to forget that the negative is not the end of his work, and to go in for "pretty" negatives.

Another point where most amateurs at first go wrong is in looking upon mere density as the *summum bonum* to be aimed at. Plenty of density and freedom from fog form the qualities sought after, and a negative combining these is often said by its happy author to "let you do anything with it, it won't make a bad print." In the sense that it always gives a rich tone, whatever depth or color it may be carried to, perhaps it is so; but, as regards gradation and general pictorial quality, the photographer himself is often the only one who does not recognise its shortcomings; and the worst of it is, that the very degree of his own satisfaction often makes it a very long time before he is willing to learn any better.

A SIMPLE APPARATUS TO EXEMPLIFY THE PRINCIPLE OF THE PHOTO-CHROMOSCOPE.*

BY CAPT. ABNEY, C.B., R.E., F.R.S., P.R.A.S.

THE paper I shall give you to-night is a very short one. It is merely on the representation of color on the screen:—In this box I have a photo-chromoscope presented me by Mr. Ives, and I have consequently been able to examine it somewhat in detail. You will recollect that the principle adopted is first to take three negatives through deep yellow and magenta combined through a deep screen of brilliant yellow, and through a very light chromium glass combined with aniline violet, which gives negatives on isochromatic plates approximating to the density that would be obtained on a perfectly sensitive plate corresponding to the three-color sensations, when positives from these are viewed through red, green and blue glass respectively, and combined together, the combination gives a picture having the appearance of natural colors. Now I come to the starting point of my remarks. The red, green, and violet are the primary colors for mixed lights, not red, yellow, and blue, for no mixture of blue and yellow will make green, but white. In other words, if you express the primary colors by + R, + G, and + V, you may express the complementary colors (W — R), (W — G), and W — V); or simply by — R, — G, —V, signifying the complementary colors to these three primary colors.

In the experiment before you, you have three primary colors nearly approaching those Ives has employed, and you will see that, by a very simple arrangement, we can show that these three colors form white light. A piece of ground glass is placed in front of the lantern condenser, and this large lens throws an image of the disc upon the screen. In front of this lens, and touching it, are three strips of colored glass in a square frame—a red, green, and blue. At present the image of the disc is ruddy, but I can so alter the amount of light passing through each that the disc becomes white, or at all events a very close approxima-

* Read before the London Camera Club.

tion to it. We can at once see the complementary colors to these three colors, and when I say complementary, I mean complementary for the kind of white we are producing. If I cover up the red, for instance, I find the color is greenish-blue, formed by a mixture of what I will call the primary green and the primary blue. I cover up the green, and we get the complementary, which is a purple, and when the blue is covered up, yellow. We may take it, then, that given these three complementary colors in this manner, we can imitate them by suitable dyes, and this Mr. Ives uses, if I mistake not, in his latest process for throwing colored photographs on the screen. By altering the area of each of these colored glasses through which light passes, you see I can obtain any color I wish, and it is on this principle that the color is obtained by the use of three positives.

You will see that these complementary colors vary in brilliancy and intensity, and it is desirable that these colors, when used as screens, should theoretically vary accordingly. Now a white surface, I take it, if photographed through these color screens, should furnish a positive which will give the same amount of reduction to the primary color that is necessary with the colors in front of this lens, so that when white light is sent through the positives and the different colors, the recombination of them should show as white. It is evident, then, that in making a start in this method of photography, it is more convenient to start from the primary colors through which three positives are viewed and combined than any other plan. Suppose the yellow-magenta takes 60 times more exposure than the green-blue, when of the proper tint, to effect this it is quite possible to increase the brightness of the yellow say three times, and thus reduce the exposure to twenty times that of the green-blue, and still retain correctness, and so on.

We thus see that the operator has it in his power to make any corrections he likes by altering the tint of his screen, and diminishing or increasing the exposure of each as he may think desirable.

Now I believe that Mr. Ives, in his camera, produces the three images through his color screens by one lens, causing the rays to

travel through the same distances, and thus give the same size of image on different parts of the plate—reflecting some from good, plain glass mirrors, others from the plain and the silvered mirror, and the others direct, or from two silvered mirrors. This is a very ingenious arrangement indeed, and one well worth enquiring about, but, in the meanwhile, there is no reason, as far as I know, why three identical lenses should not be employed which are fixed so as to take the photographs in their proper positions on the plate, and the exposures altered. This might be done by means of different diaphragms, or by altering the absolute exposure given through each color screen.

I may point out that, in the photo-chromoscope itself, certain of the rays are diminished in brightness by the use of plain glass reflectors, and this again puts it in the power of the operator to alter the density of his positives to suit his purposes.

The final outcome of the whole thing must be that the amount of red, green, and violet rays, when recombined and unshaded by a positive, must give a white light, then the interposition of the positives will give the colored photograph.

Mr. Harrison: I think very great credit is due to Mr. Ives for the way in which he has improved upon the photo-chromoscope of Du Cros and others. From the drawings I have seen of their instruments, I think there can be scarcely a doubt that they would not give such good results as his. Mr. Ives uses somewhat different glasses from those used in the process before, and he says the kind of glasses is all-important. On the other hand, Vogel, Du Hauron, and Vidal say the kind of glass employed is not of much importance, but that the skill in working is of far greater concern than these variations in the color of glass. That is how the dispute stands at present.

Mr. Kapteyn: What exposure must be given for red? It seems to me that it must be extremely long, because as I understand it, the red would be the ruling factor, and damp down the other colors. Until you get more rapidity in red, it appears to my mind that all the exposures must be very long. All the more so because the red was pretty dark, I noticed, on the screen.

Mr. Webber: I should like to know, with regard to the plates, if they are all of one kind or sensitized differently? We are told that cyanine produces a different effect from erythrosine. Are there different methods of producing these plates, or are they prepared in one and the same emulsion?

Mr. H. A. Wall: I have had a letter from M. Vidal, in which he describes the stereoscope which Nachet is now putting on the market, and which will enable us to see objects in relief and in their colors. He has not sent me a full description, so that I am unable to give it you, but I have asked for one. The only objection I have to make, if I am not traveling beyond the subject, is that the slides have not been projected on to the screen.

The President: I think the first objection I have to reply to is that about the length of exposure of the red. I take full credit to myself for being misunderstood, as I have distinctly said in my paper the screen which was employed. And then Mr. Webber has asked me if all the plates are sensitized alike. I wish Mr. Ives were here to speak for himself, but as he is not I may say that he told me he always used ordinary isochromatized plates. I am not going to express any opinion, except in a very general way, upon the statement made by certain authorities that the color of the glass through which a photograph is taken does not matter. It may not, but if you ask me what I should have thought, arguing from first principles, I should have said that I thought it did considerably. But still, very likely I am wrong. I simply say that if you argue the matter out from theoretical principles it should matter a good deal. I consider that we are too advanced to believe that one believes on assertion only. We require an assertion to be backed up by reasoning; if you argue from first principles what Mr. Ives has said is correct. I do not like slovenly science in any other subject, and I do not think photographers should go in for slip-shod science. They should make the best of all the knowledge there is with regard to matters with which they have to deal, and use it scientifically. I think we are too much in the habit of taking things on credit which would be better left unsaid until they can be proved. I am not here, however, to champion Mr. Ives. He has shown on the

screen at the Camera Club these photographs, and I say honestly that to my mind the method of projection he adopted then did not commend itself to me. He used three objectives, but I am certain that if I dared to meddle with his instrument I could have so arranged it as to project them over one another.

Mr. Lawrence: When Mr. Ives first showed his experiments he described his instrument as being clumsy, and suggested carrying out some scheme he had for applying it to the lantern.

The President: No doubt the plan was in the mind of Mr. Ives, for he has got the whole thing in the instrument for the purpose I have referred to.

The Chairman: We all know it is a treat at all times to hear our President speak. If I may be allowed, in winding up the discussion on this paper, to make some simple criticism of his remarks, I would suggest that he should refer to his own most valuable work a little more abundantly than he is in the habit of doing before us. We members of the Camera Club know very well what work Capt. Abney has done, but I am afraid the majority of us do not know it as intimately as we should. If our President had referred us this evening to his valuable book on "Color Measurement and Mixture," we should have found this whole theory worked out in such a way that any intelligent man taking the book, and carefully reading it, could trace it out for himself. I am sure that those present who have read the little volume will cordially endorse that statement, and those who have not will I hope be incited to read it. I will now ask you to pass a hearty vote of thanks to our President.

The President then resumed the Chair.

If you could once make up your mind in the fear of God never to undertake more work of any sort than you can carry on calmly, quietly, without hurry or flurry, and the instant you feel yourself growing nervous and like one out of breath, would stop and take breath, you would find this simple, common-sense rule doing for you what no prayers or tears could ever accomplish.—*Prentiss.*

CELESTIAL PHOTOGRAPHY.

BY DR. A. H. FISON.

RECENTLY, Dr. Fison delivered a lecture on "Celestial Photography," at the Town Hall, Ryde, in connection with the Oxford University Extension. He commenced by pointing out that about twenty years ago a most important invention—that of the gelatine dry plate—gave a great impetus to astronomical photography. Up to that time a few earnest experimenters had been at work, and although results of artistic excellence were then achieved, those results were of little scientific value. As they were aware photography depended upon the fact that light possessed the power of chemically changing certain substances. There were several of these substances, but the most commonly used was bromide of silver. Bromine, as many of them were doubtless aware, was an unpleasant smelling substance which, when chemically combined with silver, produced a white substance not at all like silver or bromine. When light fell on that substance it split it up, and separated the bromine from the silver. He explained how the image was thrown upon the prepared plate by the camera; and how, although it only rested there for a most infinitesimal period, the action had so affected it that by the action of certain substances, known as developers, the image, although it had only rested on the plate the hundreth part of a second, could be developed and made to re-appear. But the plates used in photography prior to the period he had mentioned were coated with collodion, which had to be dipped in a solution of silver. A very wet, messy process it was, and the plates had to be used directly they were coated. In celestial photography aerial conditions were often against the operator. He perhaps saw his opportunity, but before he could prepare his plate, it had gone. All this had been changed by the dry plate, which could be kept an indefinite period, and used the instant it was required. Moreover, in some cases, to obtain the images of some of the star clusters an exposure of many hours was required. This it was impossible to give with the wet plates,

but very easy with the dry ones. The lecturer, with the aid of the lantern slides, then explained how the telescope was used when these long exposures were required, and how delicate clock-work affixed to the telescope always kept it focused upon the star or group of stars it was desired to observe or to photograph.

Delicate and beautiful as this mechanism was, it still required, to some extent, the human intellect to guide and control it, and in some cases observers have been twelve hours at their telescope watching to see that the star did not wander from the delicate spider's threads which marked its proper position. There was nothing more harassing or exhausting than such work as this. They could easily imagine what it meant to keep one's eye on a star for twelve hours! The lecturer then exhibited a very interesting photograph of the sun, which had been taken by the collodion process, showing the curious grained appearance of the surface and the sun spots. He then showed how very advantageous the dry plates were in photographing the corona of the sun during eclipses. The corona was the projection of light which travelled far beyond the sun, and was to be seen when the moon covered completely the disc of the sun. This complete covering of the surface of the sun occurred so seldom, and the time occupied was so brief, that it had been estimated if an astronomer spent his whole life in following up all over the world the eclipses which occurred, he would not see the corona of the sun more than half an hour altogether. What therefore could they have accomplished had they been obliged to depend on eye observations alone? He then exhibited a series of views of the corona, taken at different times, but he admitted they were not the photographs actually taken. They were made up from different negatives. In order to get markings nearest the sun plainly those farthest away were under exposed; so they had to take several photographs, and the views he showed were a combination. A number of views of the moon's surface were also exhibited. Those taken when only a portion was illuminated by the sun's rays, and the shadows cast by the mountains were clearly defined, being extremely beautiful. One of these was taken at the

Lick Observatory the year before last. The photographs of the planets were not a success, but there were some interesting photos of comets. The most successful of the results were, however, obtained in photographing the star clusters in the milky way. Millions of suns were shown, every one, the lecturer believed, transcending our own sun in brilliancy and size. In fact, if our own sun could be placed amongst them, he believed it would make a very poor show. Photography had enabled them to study the nebulæ, and some beautiful photos of nebulæ were shown, notably that of Orion. In the centre of the cloud of light, stars were seen. These nebulæ were believed to be incandescent gas, and the gaseous mass was, he believed, in process of being condensed into suns. Photography also revealed clouds of nebulous matter surrounding the Pleiades, a fact which observation by the eye alone would never have shown, and which seemed to prove that these were stars almost completely formed from the surrounding nebulous matter. Photography had also revealed the existence of countless stars in parts of the heaven where very few stars could be seen with the unaided vision. The few results he had been able to lay before them, he considered extremely creditable for only twenty years' work.—*Lantern Review.*

Test for Nitrites.—At one time considerable importance was attached to the presence of nitrite in nitrate of silver solutions, many of the well-known abnormalities of the silver bath being attributed to its presence. Though the wet process is worked by comparatively few persons, it will be interesting to them to learn how to detect the presence of this impurity. Professor Odo Bujwic points out indol for the purpose as a very sensitive, beautiful reagent. An alcoholic solution of .01 or .02 per cent. is diluted with water and a few drops added to about ten centimetres of the suspected solution, previously adding a few drops of hydrochloric acid, and finally heating to 70 or 80 degrees Centigrade. At once the presence of nitrites is indicated by the production of a fine red color, which increases in intensity for a few minutes.—*The British Journal of Photography.*

THE CLASS RECORD OF THE CAMERA CLUB, U. OF P. "94."*

TO record the doings of Ninety-Four in the Camera Club is, indeed, no light task, as a glance at the names of some of its illustrious members will testify. George Codman, Sammy Tull, Percy Wilson — but enough! Surely such an aggregation is sufficient to dazzle the eyes of the greenest "Fresh" that ever entered college.

Let us look at them separately. First, Sam Tull wore a Kodak one summer with such ease and expression that he decided forthwith to join the club. Being naturally of a cold and cautious disposition, however, he first made inquiries as to the advantages, offices, and general advertising to be obtained by becoming a member. Someone told him of the beautiful darkness and obscurity that reigned at all the exhibitions. Pastorius rapidly applied, was elected, dued, slided, and with some one else occupied a back seat at the next exhibit. After the many hundred views of Wissahickon, etc., etc., had been flashed upon the screen, the lights were turned up, and the "Cherub" rose, with a sigh of regret, and left the building.

Percy Wilson was always an active (?) member until last fall, when the arduous duties of the Secretary's office threw him into a spell of sickness and he left us, never to return. As a correspondent, Percy was brilliant. In some mysterious and uncanny way he sent lists of the members all over the United States and to many foreign countries. As a result, inumerable samples of papers, etc., came to the club, which Percy would always try, and report his success with at the meetings. The rest of the club received through the mails hundreds of circulars from England and America, and a choice few from Paris which made the better element in the club turn pale—!—!!

But let us see what George Codman has been guity of. "Coddy" has always been noted for his slides of Camden Deer,

* Read at the Annual Commencement.

Pig, Squirrel, Cat and Dog Islands, Watchabaktchtkt, etc., etc. But it is not simply as a *maker* of slides that George "stands out as a mile-stone on the broad road of photography," but also in the unique way in which they were mounted. Mats making an angle of $(\phi - \theta)$ with the horizon, thus justifying Scheeling's pet theory that photography is in no sense Art.

And now that we have glanced at these few fragments of Ninety-Four's work, there arises the dire question, What will become of the club after losing these men to whom it owes so much? How will the annual trip be a success without them? Who can be found to supply the brilliant witticisms when views of "French Scenery" are thrown on the canvass at the meetings? Truly, the prospect is dark. Yet, when the younger members view the work of Ninety-Four, let us hope they may be inspired to do even greater things, and so keep the club on the high level that it has now attained.

Gigantic Leaves.—What trees bear the largest leaves? An English botanist tells us that it is those that belong to the palm family. First must be mentioned the Inaja palm, of the banks of the Amazons, the leaves of which are no less than 50 feet in length by 10 to 12 in width. Certain leaves of the Ceylon palm attain a length of 20 feet and the remarkable width of 16. The natives use them for making tents. Afterwards comes the cocoanut palm, the usual length of whose leaves is about 30 feet. The umbrella magnolia of Ceylon bears leaves that are so large that a single one may sometimes serve as a shelter for 15 or 20 persons. One of these leaves carried to England as a specimen was nearly 36 feet in width. The plant whose leaves attain the greatest dimensions in our temperate climate is the *Victoria regia*. A specimen of this truly magnificent plant exists in the garden of the Royal Botanical Society of Edinburgh. Its leaf, which is about seven feet in diameter, is capable of supporting a weight of 395 pounds. Many of our readers will no doubt recall the beautiful illustration of this plant wonder, that we published in the AMERICAN JOURNAL OF PHOTOGRAPHY, December 1891. The photograph was by Prof. Leaman, M. D., of Washington, D. C., and represents a well grown lad sitting upon one of the giant leaves.

THE PERMANENCY OF THE LATENT OR UNDEVELOPED IMAGE.

BY C. H. BOTHAMLEY.

THE question of the permanency of the latent or undeveloped impression on gelatino-bromide plates is, on account of its practical importance and its scientific interest, frequently brought forward. In the early days of gelatino-bromide emulsion work there were several undoubted cases recorded in which a fading-out of the undeveloped image took place when the plate was kept a long time after exposure and before development.

It however became to be realized that the disappearance of the latent image was really due to the action of soluble salts in the film; these salts not having been thoroughly removed. In support of this view we have the fact that in proportion as more care is taken in the washing of the emulsion, does the tendency towards the fading of the latent image lessen; or, at any rate, we have fewer records of it.

Many photographers have kept plates many months after exposure and before development without any evil consequences being noticeable, and 1890 Mr. H. S. Chamberlain recorded that he had developed plates which had been exposed two years and a quarter previously. Morever, it is on record that negatives have been obtained on plates which were developed four years after exposure; but details of these results are not recorded.

I have recently developed a number of plates which were exposed almost exactly three years previously, and as a result found that, as far as intensity is concerned, the negatives were practically the same as if they had been developed shortly after the exposure. The results were similar with five makes of English commercial plates.

Some of the negatives were faulty by reason of a trace of general fog, which, however, may be attributed to change and decomposition of the emulsion itself as a matter totally distinct from the fading of the latent image. Some plates having thick films, however, showed that the image had partly disappeared in certain places, and a more careful study of the matter led to the conclusion that this partial disappearance of the image was confined to such parts of the film as were last to dry, to which places any soluble constituents of the film naturally tended by capillary action. Thus the view that disappear-

U. S. S. CRUISER COLUMBIA.

NEGATIVE BY WILLIAM H. RAU, 1324 CHESTNUT STREET, PHILADELPHIA.

MADE ON CRAMER CROWN PLATE, SIZE 11 X 14; ZEISS LENS, SERIES IV, ANASTIGMAT F 16; TIME ONE-FIFTIETH OF A SECOND. DEVELOPED WITH POTASH AND PYRO.

ance of the latent image is due to saline impurities in the film received a notable confirmation.

The conclusion which may be arrived at is that if soluble constituents are washed out, as far as possible, the latent or undeveloped image is as lasting as the film itself.—*Abstracted from Eder's Jahrbuch, in Photographic Work.*

Official Program of the Fourteenth Annual Convention of the Photographers' Association of America, Exposition Building, St. Louis, Mo., July 24th, 25th, 26th, and 27th, 1894.

Monday, July 23d.—A greeting of friends at the Southern Hotel in the evening.

Tuesday, July 24th.—First Session, 10 a.m., address of welcome by Mayor Walbr'dge. Order of business: 1 Reading of communications; 2. Reports of committees; 3. Appointment of judges; 4. Treasurer's report; 5. Selection of next meeting-place; 6. Appointment of committees on nomination of officers; 7. Address by President Heimberger At the close of this session the Cramer prizes will be awarded. Second session, 2.00 p.m., reading of communications, report of nominating committee Discussion.—What is the best developer? What is the best method of lighting? Answer to the question box. Demonstrations of apparatus and appliances by manufacturers. (Limited to ten minutes each.)

A Special Program.—Tuesday evening, at 8.00 o'clock, at Uhrig's Cave, Cor. Washington and Jefferson avenues. Opera tendered to the Photographers and their friends with compliments of G. Cramer.

Wednesday, July 25th.—Third session, 10 a.m., reading of communications, reading of papers, reports of committes, election of officers. 2 p.m. exhibits open to the public. Admission 25 cents. Wednesday evening. Instructive session, eight o'clock, at Entertainment Hall, Exposition Building. This will be the most profitable meeting of the Convention. Lantern exhibition.—Some of the best pictures of the year will be shown for criticism. Demonstrations of lighting, posing and grouping will follow. Practical talks on practical subjects, by practical men.

Thurday, July 26th.—Grand boat excursion. The steamer "State of Kansas" will leave foot of Olive street at 10 o'clock a.m. A ride on the Mississippi, and dinner at Montesano Park. You will see base ball (as it should be played). There will be a tub race—w th your friends in it (or in the water). A sparring match, a fat man's race, a foot race, an egg race (ladies'), a sack race, and the committee is thinking of more. All the St Louis photographers, dealers and manufacturers ask of you is to come with them and have a good time. "Home by moonlight."

Friday, July 27th.—Fourth session, 10 a.m., unfinished business. Fifth session, 2 p.m., awarding of prizes.

Reduced Railroad Rates.—Rates on all railroads will be one fare and one-third on the certificate plan Inquire of your local ticket agent for particulars, on or before July 10th. If you find the agent has not been notified of the reduction, you will have sufficient time for investigation. Without certificate from starting point, full fare will be charged. Apply for certificates at least thirty minutes prior to departure of trains. Upon your arrival, be sure to deposit your certificate for signature with treasurer at Exhibition Hall.

Special Hotel Rates.—Southern Hotel, $3.00 per day and upwards. The Lindell, American plan, $2.50 per day; two persons occupying one room, $2.00 per day. Westerman's Hotel "Rozier," (opposite Exhibition Building). European plan, rooms 75 cents per day and upwards. St James Hotel, American plan, $1.50 per day and upwards. Hurst's Hotel, European plan, 75 cents per day; American plan, $1.50 per day. Merchant's Hotel, American plan, $1.50 per day and upwards.

ABSTRACTS FROM TRANSACTIONS OF BRITISH PHOTOGRAPHIC SOCIETY.

Action of Formic Aldehyde on Gelatine.—Formic aldehyde occurs in commerce as a 40 per cent. solution under the name of "formalin." Gelatine immersed in this solution for a few minutes is rendered insoluble in boiling water, caustic alkalies, cyanide of potassium, and nitric and hydrochloric acids, and when heated in water contracts considerably. (A stripped film contracted from quarter plate to lantern size.) Gelatine may be treated by exposing it to the moist vapor given off from the solution instead of immersing it therein. J. B. Findlay says that formalin renders gelatine somewhat opalescent.—*F. H. Glew.*

Action of Light on Salts of Tungsten.—At the Société Industrielle de Mulhouse, M. Schoen made a communication on the salts of tungsten. Sodium metatungstate, obtained by adding hydrochloric acid to a neutral solution of tungstate, is affected by the solar rays, paper dipped in a 5 per cent. solution turning rapidly blue in the light, the coloration being due to the reduction by the salt of tungsten under the light's action. Prints by this method have been shown by the author at the Société d'Études Photographiques de Paris, but unfortunately the blue color obtained disappears slowly when the action of the light ceases, a print which has turned blue becoming completely white after being kept in the dark, but assumes once more a blue color when exposed afresh to light. M. Abel has endeavored to use this peculiarity in a chemical actinometer. The efforts of the author to fix the blue image have not yet given satisfactory results, the blue salt being soluble in water. Salts of zinc and of tin increase the intensity of the tint while ferrous sulphate turns it brown. A sheet of gelatinized paper was immersed in a solution of sodium metatungstate and potassium bichromate, dried in the dark, and exposed to light under a negative, rinsed to eliminate the salts which have been unaltered by light, then dipped in a weak solution of salts of zinc yielding a feeble image which this latter bath increased in vigor. The print was again washed and then dried, and the coloration seemed permanent. Some derivatives of the aromatic series were tried, hydroquinone amongst others, and yielded more satisfactory results. The sensitiveness of sodium metatungstate not being very great it seemed desirable to endeavor to increase it. From the experiments of M. Schoen, the salts of copper retard the action of light in proportion to the amount of the

copper salt employed. The addition of ammonia renders this action of copper more energetic and further decreases sensitiveness. Exposed to light, paper prepared with metatungstate with the addition of a salt of copper, especially in the presence of ammonium chloride, rapidly yellows, probably on account of the tungstic acid set free, and then turns blue, but much slower than when copper is not present.

In the dark the prints containing copper become white quicker than those without it. By treating the colored prints so obtained with water a blue solution is obtained which bleaches in about an hour even in the light. Acetate of lead gives with this solution a precipitate of the same color, which also rapidly bleaches. A solution of metatungstate exposed to light does not change in tint. Salts of iron, manganese, and vanadium when added to sodium metatungstate do not appear to influence appreciably the color obtained, nor to increase its sensitiveness. The author points out that tungsten is already employed in certain toning baths, and that possibly in the future another use may be found for it by employing it for printing purposes.—*A. Villain.*

Intensification with Pigmentary Matter of Silver and Platinum Images.—If a fixed and washed gelatino-chloride print, for example, is immersed in an alkaline solution of pyrogallol, hydroquinone, or similar developing agent, intensification will soon take place by the deposition on the image of colored oxidation products of the developing substances. Platinum prints may be intensified to a reddish brown color by means of a solution of amidol containing sodium carbonate.

Reducing Negatives.—Lainer states that the following is a slow reducer which keeps well:

Potassium iodide	10 g.
Solution of hypo 1 : 4	1,000 ccm.

Reduction takes place very gradually without affecting the fine details.—*E. J. W.*

Anaglyphs. Stereoscopic Prints in Half-tone and Two Colored Inks.—This article describes the method of M. Ducos du Hauron, by which through the employment of red and blue inks in printing the stereoscopic pictures from half-tone blocks, partially superimposed, and using eye-glasses of red and blue tints respectively, the stereoscopic effect is obtained. An illustration is given with the article, and the necessary eye-piece composed of a red and blue film. —*A. Guerronnan.*

Photographic Hints and Formulæ.

Developer for Flash-Light Negatives. — One of the best English photographers uses the following solution for developing flash-light exposures. With this formula were made some of the celebrated exhibition pictures which were so much admired at the late joint exhibition. It will be noticed that there is some considerable modification of the developer as used for normal exposures.

A—Pyrogallic acid (Schering)	1 ounce
Bromide ammonium	½ "
or	
Bromide of potassium	¾ ounce
Water	7 ounces
B—Ammonia	1 ounce
Water	40 ounces
C—A	1 ounce
Water	20 ounces

To develop, take equal parts of B and C, which will, in ordinary cases, ensure a soft and well-graduated negative, although different proportions of B and C will be required for under-exposed plates, or for subjects introducing white draperies, or dead black dresses, etc. The judgment of the operator will, in most cases, tell him what proportions are required, and if the first appearance of the image should prove he has miscalculated, he should not try to improve the solution he is using, but throw it away and commence again with fresh.

Separate Toning and Fixing Baths.—The Kirkland Lithium Paper Company has issued the following formula for separate toning and fixing baths, by which any tone can be produced on their paper from a cherry to a black, viz.:

Print to a moderately dark shade, and immerse prints without previous washing in the following developer:

No. 1.

Hot water	64 oz.
Borax	1 oz.
Sulphate Soda (Glauber Salts)	2 oz.
Powdered alum	4 oz.

Dissolve in order named. Let settle or filter. Can be used until it refuses to harden. Use cold.

Take prints from No. 1 and wash through three (3) changes of water and tone in

No. 2.

Water	60 oz.
Acetate soda	30 gr.
Bi-carb. soda	60 gr.
Gold (neutral)	1 gr.

Mix bath about 1 hour before toning, or start in with half old and half new if prints bleach or tone too fast. Prints should tone in 5 minutes.

To avoid weighing every time a bath is prepared, keep your sodas in solution, as follows:

Water	16 oz.
Bi-carb. soda	2 oz.
Acetate soda	1 oz.

To make bath, take of

Water	60 oz.
Soda solution	1 oz.
Gold (neutral)	1 gr.

For a rich purple tone take prints from bath at a rich cherry. For a deep blue or blue black carry toning to the blue stage.

After toning throw prints into clear water and take from this to the following bath:

No. 3.

Hot water	64 oz.
Borax	½ oz.
Powdered alum	2 oz.
Sulphate soda	1 oz.
Hypo	4 oz.

Dissolve in order named, and let settle or filter. Fix from five to ten minutes. If prints are too warm in tone, allow to remain in fixing longer.

After fixing, prints should be washed through a dozen changes of water, or fifteen minutes in running water.

1. Prints should be kept well separated and in motion in each bath.

2. If prints tone a bricky red, toning bath is too new or acid. Add more old bath.

3. If prints tone too slow, add more gold, but let stand a few minutes before using.

4. Special care should be used in keeping prints well separated in the washing after fixing, to eliminate all hypo.

5. No. 1 and No. 2 should be made in larger quantities and allowed to settle. No. 3 should be used but once.

6. Be careful to avoid air bells in each bath, as they will cause red spots.

7. Old bath can be used over by adding the same quantity of gold as called for by above formula. In cold weather there is no necessity for using No. 1.

The above process will give fine results and prints that withstand hot water.

Color Sensibilators for Photo-Micrography.—Monpillard, in his treatise on "Orthochromatism and Micrography," gives the following directions for making ordinary plates extra sensitive to the colors usually employed in the preparations for the microscope. Plates to reproduce yellow, yellow-green, and orange-yellow should be stained in a solution of

Normal solution, Erythrosin	1 g.
Distilled water	1000 cm.

For use—

Normal solution, Erythrosin	4 c.cm.
Distilled water	100 c.cm.
Ammonia	0.5 c.cm.

For the reproduction of red and orange-red a solution of cyanine may be used, viz.:

Normal solution, cyanine	0.2 g.
Alcohol 95°	100 c.cm.

This solution must be used fresh, and be kept in the dark. For use:

Normal cyanine solution	4 c.cm.
Distilled water	100 c.cm.
Alcohol 95°	5 c.cm.
Ammonia	1.05 c.cm.

The plates are to be immersed in above solution for two minutes, the tray being kept in constant motion, after which they are washed in three trays of distilled water, and then placed in a box to dry. It is requisite that a tray of chloride of calcium be exposed in this receptable.

To produce plates which are sensitive for red as well as yellow and green-yellow, it is necessary to subject the plate first to an erythrosine bath—

Normal solution, erythrosin	20 c.cm.
Distilled water	80 c.cm.

Then wash in distilled water, and immerse for two minutes in the above cyanine solution.

According to Montpillard there is no danger of fog in plates treated by above method.

To obtain the maximum results, it is necessary to use a color-screen or filter with plates treated by the above method.

Aristotype Papers in Summer.—The *Amateur Photographer* advises that during the hot weather the prints should before toning be steeped for five minutes in a saturated solution of alum; then after a thorough washing be toned in the following bath:

Sulpho-cyanide of ammonium	5 grams.
Water	100 grams.
Chloride of gold, at 10 for 100	10 c.cm.

When the desired tone is obtained, wash prints slightly before fixing them in

Hypo	12 parts.
Water	100 parts.

The alum solution rapidly becomes turbid by the presence of silver salt contained in the gelatine coating. It should therefore be rejected after about ten prints have been used.

Metol Soda Developer.—A good, energetic, clean-working metol-soda developer is obtainable in the following way:

A.	Distilled water	1000 parts.
	Sodium sulphite (crystal)	100 parts.
	Metol	10 parts.
B.	Distilled water	1000 parts
	Carbonate of soda (pure crystal)	100 parts.

For use mix in equal parts.

Chlor-aurate of Silver.—Chlor-aurate of silver, $AgAuCl_4$, an interesting compound of the very soluble and deliquescent chloride of gold with the particularly insoluble chloride of silver, is described by Dr. Hermann, of Aschaffenburg, in a recent number of the *Berichte*. This compound has formed the object of previous unsuccessful researches, but its preparation is very simple when the necessary conditions are known. Four parts by weight of metallic gold are dissolved in aqua regia, and the solution evaporated over the water bath, until upon cooling the resulting chlor-auric acid, $HAuCl_4$, crystallizes. One part by weight of silver dissolved in dilute nitric acid is then added, when silver chloride is precipitated in its usual form. Upon repeated evaporation of the whole with concentrated nitric acid containing a trace of hydrochloric acid, the silver chloride changes, becoming colored bright red, and eventually is completely converted

into mass of crystals of silver chlor-aurate. The crystals are long prisms terminated by pyramids and dome faces; they appear to be colored bright orange-red when singly examined by reflected light, but are pure yellow by transmitted light, and the finely-powdered substance reflects bright yellow light. It is interesting to note that, when enclosed in a sealed tube containing perfectly dry air, the compound is quite stable and unaffected by bright sunlight, but the moment it is exposed to sunshine, in ordinary moist air, it commences to bronze, and eventually becomes superficially coated with a dark bronze metallic coating. Dilute hydrochloric acid instantly decomposes it with formation of silver chloride and a solution of chlor-auric acid. Ammonia, on the other hand, decomposes it with production of the usual ammoniacal solution of silver chloride and deposition of fulminating gold.—*The British Journal of Photography.*

Explanation of sensitometer numbers of the various brands of Carbutt's Keystone Plates:

"A" Brand	Sensitometer	10,
Process Brand	"	12,
"B" Brand	"	16 and 20,
Orthochromatic	"	23, 25 and 27,
Special Portrait	"	25,
Eclipse	"	27.

The sensitometer number on each box of plates indicates their sensitiveness; the higher the number the greater the rapidity of the plate.

For the portraiture on the "Special" and "Eclipse" plates under the skylight, if an "Eclipse," sensitometer 27, required 2 seconds, a "Special" sensitometer 25, would require 3½ seconds, and a "Special," sensitometer 23, 4⅔ seconds.

For outdoor time exposures, in good weather and bright light, with stop *f-32*, which is the average small stop of most symmetrical and single-view lenses, the exposure will be about as follows:

For "B," sensitometer 16, 6 seconds; sensitometer 20, 3½ seconds.

For "Orthochromatic," sensitometer 23, 2½ seconds; 25, 1½ seconds, when *not* using color screen. With color screen, give 3 to 5 times longer exposure.

For "Special," sensitometer 23, 1¼ seconds; sensitometer 25, 1 second.

For "Eclipse," sensitometer 27, ½ to ¾ of a second.

The above is calculated for bright, clear weather, from June to October. From November to May 50 to 100 per cent. increase of exposure should be given.

Directions for Using Eastman's Platino-Bromide Paper.—(See Frontispiece). Any photographer, professional or amateur, who understands working bromide paper, has nothing to learn in order to handle platino-bromide successfully. The processes are exactly the same. For such as have had no experience with papers of this class we give the following standard formula:

No. 1.

Oxalate of potash	1 lb.
Hot water	48 ozs.
Acetic acid	3 drams.

No. 2.

Proto-sulphate of iron	1 lb.
Hot water	32 ozs.
Acetic acid (or citric acid ¼ oz.)	½ dram.

No. 3.

Bromide potassium	1 ounce.
Water	1 quart.

These solutions keep separately, but must be mixed only for immediate use.

To develop, take in a suitable tray—No. 1, 6 ounces; No. 2, 1 ounce; No. 3, ½ dram.

Mix in the order given; use cold. After exposure soak the paper in water until limp; if troubled with air bells or white spots, rub surface of paper while under water with tuft of cotton or camel's hair brush; then immerse in the developer.

The image should appear slowly, and should develop up strong, clear, and brilliant. When the shadows are sufficiently black, pour off the developer and flood the prints with the clearing solution, acetic acid, 1 dram; water, 32 ounces.

Do not wash the print after pouring off the developer and before applying the clearing solution.

Use a sufficient quantity to flow over the print, say 2 ounces for an 8x10. Allow it to act for one minute, and pour it off and apply a fresh portion; repeat the operation a third time; then rinse in pure water, and immerse for ten minutes in the fixing bath, hyposulphite soda, 3 ounces; water, 16 ounces.

After fixing, wash thoroughly two hours, and hang up to dry. Use fresh developer for each batch of prints. With a glass-bottomed tray, seven ounces of developer are sufficient for a 25x30 print.

Contact Printing.—Very thin negatives should be printed on "Hard" paper to secure the best results. Strong negatives require "Soft"

paper to overcome the contrasts. Gas, lamp, or candle light may be used. Strong, intense negatives are best printed by daylight.

The exposure varies with the intensity of the negative and the quality and intensity of the light, but may be approximately stated to be, using as thin a glass negative or film as will make a good print, one second by diffused daylight, or ten seconds at a distance of one foot from a number two kerosene burner.

A SERIES OF FINE NEGATIVES.

THE set of negatives used in illustrating the June JOURNAL with "Ilo" prints, were ordinary everyday studio negatives, from the gallery of M. R. Hemperly, No. 820 Arch Street, Philadelphia, and were not strictly fair representations of his finest work.

Mr. M. R. Hemperly, who is an old photographer of twenty-six years' standing, is also known to the photographic fraternity as the inventor and patentee of the magazine flash-lamp, which bears his name.

Mr. Hemperly originally came from Sunbury, Penna., where he had learned the art from one of the oldest practitioners in the interior. After coming to Philadelphia he worked or operated in various establishments, until he finally became connected with Messrs. Gilbert and Bacon, then one of the leading photographic firms on Arch Street. So successful an operator in all branches was the subject of this sketch, that he soon enjoyed the distinction of receiving the largest salary of any photographer in the state. He remained with the firm for twelve years, and shortly after their removal to Chestnut Street Mr. Hemperly bought out the original stand of his old employers, and now does a lucrative business in all the legitimate branches of portraiture. The Hemperly studio is especially noted for the artistic posing in full-length portraits and grouping.

Mr. Hemperly uses about equal quantities of aristo and albumen papers for his regular studio work. A specialty of this gallery are the new "Miniature Pastelines," pleasing portraits in color. The process used is an invention or process of Mr. Hemperly, and consists of an application of fine French pastel colors upon an aristo base, the combination forming a beautiful effect.

The Ilotype Company were fortunate in obtaining the use of this fine set of negatives for their specimen prints, which formed the frontispiece of our last number. It was a happy combination which cannot fail to do credit to all parties concerned.

OUR ILLUSTRATIONS.

Our Platino-Bromide Frontispiece.—Our convention journal for the present month is embellished with a double frontispiece, each specimen representing the latest result in the special department to which it belongs.

The series of negatives used in the developed prints are from the old Philadelphia studio of W. Curtis Taylor & Co., 1318 Chestnut Street, of which Mr. Samuel R. Gray is now chief operator. The subjects are semi-theatrical characters from Gilbert & Sullivan's operas "Pinafore" and "Mikado." The paper used is the new argentic bromide paper made by the Eastman Company of Rochester, N. Y. This paper differs from the old-style of product, giving soft, rich effects, velvety blacks, absolutely pure whites, and having a dead surface like platinum. Unlike platinum paper, however, it will keep before and after exposure, and can be printed by lamplight.

Mr. Samuel R. Gray, who is a born artist, handles the brush and palette with as much ease and certainty as he manipulates his camera, and he prides himself upon the superior finish, artistic pose, and careful study of lighting. Photographing in costume is a special feature in this old-time Philadelphia studio. Mr. Gray prides himself upon his fifteen years' experience, during which time he passed through all the later phases of photographic portraiture. But during all of the various transitions Mr. Gray never neglected his practice of combining miniature pastel and water-color work with the various photographic processes.

It is an interesting item that almost directly opposite the Taylor studio, from one of the windows of the United States Mint, was made the first heliograph in America by Joseph Saxton in October, 1839.

Our Photo-Chromotype.—A photo-mechanical reproduction of a portrait by Sully of the illustrious Lafayette in the colors of the original painting, a specimen of color work as produced by photo-mechanical means by the Photo-Chromotype Company of Philadelphia. In a previous number (January, 1894) we called attention to the great advances Philadelphia's citizens had made in this branch of art in advance of their competitors elsewhere. The portrait here presented is the result of printing-blocks from negatives made according to the three-primary-colors theory; from these blocks impressions printed in red, yellow, and blue are superimposed by successive printings on an ordinary printing-press.

This specimen represents the very latest stride towards perfection made in this department. The photo-mechanical processes are asserting themselves, and have come to stay, and we again recognize the fact that Philadelphia is in the lead, as it has always been in matters photographic.

The United States Steam Cruiser "Columbia."—A half-tone reproduction of a negative by Wm. H. Rau, 1324 Chestnut Street, Philadelphia. Mr. Rau may well be proud of his success in large railroad and marine work. The subject of our illustration is the justly celebrated United States Steamer "Columbia," well named the "Pride of the National Navy." For speed and modern naval improvements the "Columbia" floats unequalled, a pattern for the navies of the world. The enormous horse-power developed by her engines, together with her triple screws and modern armament, place all vessels, naval or commercial, at her power. It may be well to say that the "Columbia," the finest naval vessel afloat, was built in Philadelphia by Philadelphia mechanics. The photograph as well as the reproduction are also specimens of Philadelphia handiwork.

The Eastman Kodak Patents.—We are in receipt of a copy of the decision handed down by Judge Colt, of the United States Circuit Court, in the case of The Eastman Kodak Company vs. The Blair Camera Company, granting an injunction against the defendants, and thus sustaining the fundamental roll-holder patents owned by The Eastman Company.

The company have spent large sums of money in perfecting the roll-holder, and in maintaining their patents in the courts, but pending this decision have refrained from interfering with the sales of other roll-holders. As a matter of self-protection, however, they shall in future maintain their rights, and the trade is cautioned against the manufacture, sale, or use of cameras or roll-holders containing any device which is an infringement upon the patents of The Eastman Kodak Company.

The duration of the electric spark does not exceed the twenty-five thousandth part of a second, and a bullet in flight has been photographed by means of this spark, a marvelous development of modern science.

The Photographic Society of Philadelphia.—At the stated meeting held Wednesday evening, June 13th, 1894, a reply by the United States Projectile Company to the paper read at the March meeting by Mr. S. Ashton Hand, on the "Use of Steel Cylinders for Holding Gases under Pressure," was read, and there was considerable discussion of the subject.

Mr. Frederic E. Ives demonstrated his method of using the ether saturator in connection with his folding lantern, and made some remarks on the use of saturators in England.

Dr. Wm. Duffield Robinson showed an ingenious new twin-lens magazine hand-camera of his own invention.

At the members' meeting, on Wednesday evening, June 27th, the interchange slides, contributed by the members of the Photographic Society of Philadelphia, were shown.

Photographic Catalogue.—The Bausch & Lomb Optical Company of Rochester, N. Y., have issued a seventh edition of their photographic catalogue. We call special attention to the completeness of this catalogue, as it embodies lenses which will meet the requirements of photography in all its branches. A new test-chart is supplied with each of the lenses made by the Bausch & Lamb Company. Its practibility for the testing of photographic lenses is a novelty, the utility of which becomes at once apparent.

The Photographic Society of Japan.—The annual meeting of the above-mentioned Society was held at the Shiba Koyokwan, at 4 p.m., on the 20th, Dr. E. Divers, F.R.S., in the chair. The first business was the election of officers, and the following changes and additions were made: Mr. Kajima Seibei resigned the treasurership and was elected a vice-president; Dr. E. Baelz was elected a vice-president; Mr. Y. Ishizu was elected a treasurer; Mr. K. Ogura was elected a member of the committee. The remaining officers for the past year were all re-elected.

California Camera Club.—A special meeting of the California Camera Club was held Tuesday, May 29th. The resignation of Geo. W. Reed, for the past years treasurer of the Club, was received and accepted with great regret. Dr. E. G. Eisen was unanimously elected his successor.

A set of slides from the London Lantern Society was shown. They were greatly enjoyed by the members present, a series by Mr. A. Captain being especially admired.

The Sixty-second Annual Exhibition of the Royal Cornwall Polytechnic Society will open at the Polytechnic Hall, Falmouth, on Tuesday, August 28th, 1894. The committee have arranged that this year the special feature of their exhibition shall be Photography and the Printing Press. The committee would point out that this will be the first exhibition ever arranged of photo-mechanical printing and appliances, and that in view of the enormous importance of photo-illustrative work, it is sure to attract more than local attention. Special efforts will be made to secure ample notice by the technical, scientific, illustrated, and general press; and there is good promise that many journals will be specially represented; while some of them will be exhibitors. In the large and influential though somewhat isolated district from which the exhibition attracts its visitors, there is undoubtedly an immediate opening for a greatly increased use of photo-mechanical work in its commercial, as well as its artistic applications.

It is intended that the exhibition shall cover every department of photo-mechanical work and apparatus, including: 1. Photo-mechanical prints: Half-tone, Collotype, Photogravure, Woodburytype, Photolitho, etc. 2. Photo-mechanical Printing, showing the actual printing of such works. 3. Photo-chromatic Processes, for the reproduction in color of pictures and natural objects, will be a special section. 4. Originals for Photo-Reproduction. Line and wash drawings; scraper-board work; hand-work on photograms intended for half-tone reproduction etc. 5. Photo-mechanical Apparatus and Materials: —Cameras, half-tone screens, chemicals, prepared metals, papers, boards; printing presses, ink-rollers, inks, etc.

Educational Exhibit.—A special educational exhibit, showing reproduction from the same originals by various processes; the stages in production of printing-blocks, plates, etc., and similar matters will be prepared under the superintendence of the secretaries of this section.

Historical Section.—A special section will be devoted to historical prints; examples of early processes and early apparatus etc., and those who possess such subjects of interest are specially requested to offer them for exhibition.

The Society offer awards of silver and bronze medals in various sections for special processes involving important points of novelty, and for special excellence in production. Applications for entry forms and any further information respecting these special exhibits should be made to the Hon. Secretary of the Department, Mr. H. Snowden Ward, 6 Farringdon Avenue, London, E.C., or to the Secretary of the Society, Edward Kitto, F.R.Met.S., the Observatory, Falmouth.

The Thirty-ninth Annual Exhibition of the Photographic Society of Great Britain will be held in the Gallery of the Royal Society of Painters in Water Colors, 5A, Pall Mall East, London, S. W. The Exhibition will be inaugurated by a Conversazione on Saturday, the 22d of September, 1894, and will remain open daily (Sundays exceped) from Monday, the 24th of September, until Wednesday, the 14th of November. Admission (from 10 a.m. till 5 p.m.), One Shilling. It will also be open on Monday, Wednesday and Saturday evenings, when lantern slides will be shown; admission (from 7 to 10 p.m.), Sixpence. Medals will be placed at the disposal of judges for the artistic, scientific, and technical excellence of photographs, lantern slides, and transparencies, and for apparatus. Exhibitors who desire to do so may state whether they wish their exhibits to go before the art or the technical judges, or both.

The undermentioned gentlemen have been elected by the members of the Society to act as judges, and have consented to serve:

Art Judges.—F. P. Cembrano, Jun., Col. J. Gale, Seymore Lucas, A.R.A., F. M. Sutcliffe, B. Gay Wilkinson, Jun. Technical Judges:—Chapman Jones, F.I.C., F.C.S., A. Pringle, F.R.M.S., J. W. Swan, M.A., F.I.C., F.C.S.

Foreign exhibitors are invited to contribute. The Society will pay the carriage on photographs on the return journey, and provide frames or portfolios during the exhibition for approved photographs. There will be no charge for wall space. Exhibits sent by carrier must be *carriage paid*, and addressed to the Secretary Photographic Society of Great Britain, 50, Great Russell street, Bloomsbury, London, W.C., and should arrive by Saturday, September 8th, at the latest, in order to insure the delivery of the exhibits at the Gallery before closing time. No packing cases can be received at the Gallery.

It is to be distinctly understood that the sending of exhibits signifies acceptance by the exhibitor of the decision of the Council upon all matters connected with the exhibition as absolute and final. The Council do not hold themselves responsible for any damage that may happen to the exhibits while in their custody, but every precaution will be taken to insure their safety and prompt return to the owners at the close of the exhibition.

Blank entry forms and any further information respecting the exhibition, also nomination form for membership, can be obtained from the Assistant-secretary of the Society, 50, Great Russell street, London, W.C., Chapman Jones, *Honorary Secretary.*

It has been customary for the California Camera Club to give the members a treat each year in the way of an outing or two, the Club paying part of the expenses. This year the Outing Committee have selected a new section for the trip, one that is not visited as much as nearer points, but we are confident will afford a most pleasant outing, and possibly some fine pictures. The trip will be to Redwood City, where the Club will provide conveyances for the party for a beautiful ride out out into the country to Searsville and Woodside. Plate exposing was the order of the day. After lunch the ride was continued, visiting Stanford University, and finishing at Mayfield 4.45, to take the train for the city.

A Photographic Reminiscence of the Schuylkill Flood.—A few days ago there was displayed on one of the swinging doors that formerly adorned a saloon at Twenty-third and Vine streets, Philadelphia, a photograph taken during the flood of 1869, of a man and woman being taken from the second-story window in a rowboat. This picture was long a source of conversation among the frequenters of the saloon, some of whom affected to disbelieve even the positive proof of the photographer's art, believing it impossible for any rise of water to reach those limits. That particular saloon ended its existence on the advent of the high license law, but the truth of the photograph was doubly proven in the recent flood, when the second-story windows of the same house were again used for exit purposes.

A New Enterprise.—The following communication has been received and explains itself:

ROCHESTER, NEW YORK, June 16th, 1894.

Editor AMERICAN JOURNAL OF PHOTOGRAPHY: Having had numerous inquires from friends throughout the country regarding rumors concerning my resignation from the Photo-Materials Company of this city, I wish you would kindly devote sufficient space in your valuable journal to inform your readers that on May 21st my connection with said company ceased.

It may also interest your readers to learn that I am at present fitting up a factory for the production of several photographic specialties, among which will be a chloride printing-out paper, glossy and plain bromide paper, and a new style hand camera. I believe, like the newspaper writer: "Keeping everlastingly at it will bring success."

Very truly yours,

G. D. MILBURN.